Section 8
Illicit Discharges Detection and Elimination Component

8.0 Overview

Order No. 2001-01, NPDES NO. CAS0108758 requires the establishment of an Illicit Discharge Detection and Elimination (IDD&E) Component within the Jurisdictional Urban Runoff Management Plan (JURMP). The IDD&E Component for the City of Carlsbad actively seeks and eliminates illicit discharges and connections within their jurisdiction. The following Subsections address IDD&E impacts to storm water quality, activities to investigate and eliminate, actions to prevent, and enforcement to maintain consistency in application throughout the City of Carlsbad. This Component meets or exceeds minimum requirements as specified in Section H of the Permit.

- Illicit Discharges and Connections (Section 8.1)
- Dry Weather Analytical Monitoring (Section 8.2)
- Investigation/Inspection and follow-up (Section 8.3)
- Elimination of Illicit Discharges and Connections (Section 8.4)
- Enforce Ordinance (Section 8.5)
- Prevent and Respond to Sewage Spills and Other Spills (Section 8.6)
- Public Reporting of Illicit Discharges and Connections (Section 8.7)
- Disposal of Used Oil and Toxic Materials (Section 8.8)
- Limiting Infiltration from Sanitary Sewer to MS4 (Section 8.9)

Subsections 8.1 through 8.9 uses a table format to briefly summarize the purpose of the Subsection, quote the applicable regulatory requirements from Sections F and H of the Permit (*italicized*), and list the City's actions(s) to meet the regulatory requirements. The rest of the subsection outlines in detail each action plan and describes the specific actions that have been completed, are in progress, or are projected by the City of Carlsbad to meet or exceed that Permit requirement.

Each part of IDD&E Component is presented using spreadsheet programming. Text is used to bullet major concepts or milestones. Checklists and report forms are incorporated into text providing a "stand alone" Component. Where appropriate, an action plan is associated with percentage goals to indicate intended improvements during the five-year permit term. The City of Carlsbad proposes to address 100% of illicit discharges and connections for investigation; enforcement; and reporting although a performance goal of 95% is expected to meet Permit requirements. The 95% performance goal allows for accounting of investigations "in-progress" where the source has not been identified at the end of the reporting year. Open investigations that cannot be resolved after 90 days due to the lack of additional information or repeat of the incident or event will be closed. Staff may use the information, if a repeat incident is found at a later date.

The types of information that should be collected for use in preparing the Annual Report and Assessment/Evaluation of the JURMP is outlined in Section 11 of this JURMP, Assessment of Jurisdictional URMP Effectiveness Component.

8.1 Illicit Discharges and Connections

8.1.1 Purpose and Permit Requirements

Purpose

The purpose of this Section is to define illicit discharges and types of illicit discharges and connections that will be the focus of the City's Illicit Discharges Detection and Elimination Program (IDD&E).

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Illicit Discharges and Connections is as follows:
Section F.5.a
Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with Section B. of this Order.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component for Illicit Discharges and Connections is as follows:
Section H.1.a.(7)(a)
A description of the program to actively seek and eliminate illicit discharges and connections

City Actions

1) Define terms to describe the program to actively seek and eliminate illicit discharges and connections.

8.1.2 Illicit Discharges and Connections Actions

<u>Action #1</u> - Define terms to describe the program to actively seek and eliminate illicit discharges and connections.

The Illicit Discharge Detection & Elimination (IDD&E) Program for the City encompasses all sources of solids and liquids containing pollutants and sanitary sewer system wastewater that may enter the MS4. The Program focuses on prevention while actively pursuing, investigating, and eliminating illicit discharges. The City strongly encourages voluntary elimination and cleanup of illicit discharges to decrease the effort of enforcement (Section 8.5).

Illicit discharges are a point source discharge of pollutants to the Municipal Separate Storm Sewer System (MS4), which are not comprised entirely of storm water (i.e. rainwater and snow melt) and not authorized by a National Pollutant Discharge Elimination System (NPDES) Permit. An illicit discharge may be the result of pollutants (Pollutant - See definition below) entering the MS4 by:

- Spills,
- Illegal and illicit connections to the MS4,
- Illegal dumping (direct and indirect) to the MS4, and
- Prohibited discharges (See below).

Examples of point source discharges are:

- Industrial,
- Commercial,
- Municipal,
- Residential,
- Construction,
- Any type of wash water,
- Any water/liquid containing pollutants, and
- Sanitary sewer wastewater.

"Pollutant" means and includes, but is not limited to, solid waste, sewage, garbage, medical waste, wrecked or discarded equipment, radioactive materials, dredged spoil, rock, sand, sediment, silt, industrial waste, and any organic or inorganic substance defined as a pollutant under 40 C.F.R. 122.2 whose presence degrades the quality of the receiving waters in violation of water quality standards such as fecal coliform, total coliform, volatile organic compounds (VOC), surfactants, oil and grease, petroleum hydrocarbons, total organic carbon (TOC), lead, copper, chromium, cadmium, silver, nickel, zinc, cyanides, phenols, fertilizers, pesticides, herbicides, and other biocides.

A "pollutant" also includes any contaminant which degrades the quality of the receiving waters in violation of Basin Plan and California Ocean Plan standards by altering any of the following parameters: pH, total suspended and settleable solids, biochemical oxygen demand (BOD), chemical oxygen demand (COD), nutrients, temperature, and other narrative standards of the Basin Plan.

The above definitions of "pollutant" are also in the revised Carlsbad Municipal Code, Section 15.12 020 Four key areas are the focus of the City's active pursuit and elimination of illicit discharges.

- Revise Ordinance - Outline description and enforcement of Illicit Discharges

  - ✓ Define Illicit Discharge and diagram the activities to seek and eliminate
  - ✓ Prevent or Reduce pollutants from contacting or entering storm water
  - ✓ List types of Prohibited and Exempted Discharges

- Assign Responsibilities and Develop processes.

  - ✓ Information receipt,
  - ✓ Verification
  - ✓ Investigation
  - ✓ Corrective action
  - ✓ Maintenance
  - ✓ Documentation
  - ✓ Trends
  - ✓ Information retrieval and archive

- Implement a Dry Weather Analytical Monitoring Program - Detects potential chemical, physical, and biological pollutants in urban runoff.

  - ✓ Collect information
  - ✓ Assess on an event-by-event basis
  - ✓ Investigate
  - ✓ Eliminate

- Evaluate Program - Measures success of the IDD&E Program

  - ✓ Set Baseline
  - ✓ Define Goals
  - ✓ Assess Annual Accomplishments

PREVENTION

Prevention will be accomplished through the use of education and training of the general public, businesses, and City staff. All prohibited discharges and non-storm water discharges will be targeted for prevention (See Non-Stormwater Discharge Evaluation Worksheet after this Section). Prevention will be at the maximum extent practicable. The following compose the City's Pollution Prevention Program:

- Prevent spills from entering the MS4 including spills from septic and sanitary sewer systems
- Implement controls to prevent or limit infiltration of seepage from sanitary sewer system to the MS4
- Conduct routine maintenance on the sanitary sewer system to prevent spills and discharges to the MS4
- Respond, contain and remediate spills including sanitary sewer system spills or discharges and privately owned systems.
- Implement BMPs as appropriate for the potential type of spill or illicit discharge.

REDUCTION

The City of Carlsbad outlines in their Municipal Code (Chapter 15.12) the specific activities where Best Management Practices may be required by an enforcement official. Implementation is to the maximum extent practicable for the following activities:

1. Automobile, airplane, boat, and/or vehicle, repair, service, fueling, maintenance, washing, storage, and/or parking;
2. Landscape and garden care activities including application of related products, such as pesticides, herbicides, and fertilizers;
3. Building repair and maintenance, including but not limited to cement mixing, repair or cutting, masonry, painting and/or coating;
4. Impervious surface or building washing or cleaning, including power washing or steam cleaning;
5. Storage and disposal of household hazardous waste (e.g. paints, cleaning products, pesticides, herbicides);
6. Disposal of pet waste;
7. Storage and disposal of green waste;
8. Mobile carpet, drape or furniture cleaning;
9. Pool, spa, Jacuzzi, or fountain cleaning, servicing, or repair;
10. Pest control; and
11. Plant growing including: farm land, fields, nurseries, greenhouses, and/or botanical gardens.

ELIMINATION

Elimination will be accomplished by identifying prohibited discharges, terminating the current discharge, and discontinuing future discharges of similar nature at the same source. The specific prohibited discharges listed below and non-storm water discharges will be the targets for IDD&E Program. Once a discharge or connection has been verified, the appropriate agency will be notified of the incident, the type of material discharged, and amount discharged. Elimination will be at the maximum extent practicable.

PROHIBITED DISCHARGES

The City adopted the following discharges as strictly prohibited. The list is a culmination of Chapter 8.30, Order 2001-01, and Basin Plan prohibitions.

1. Non-storm water discharges with exceptions.
2. Non-prohibited discharges identified as a significant source of pollutants (Part B.2 of the Permit)
3. Discharges of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water code Section 13050.
4. Discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water code Section 13264.
5. Discharge of pollutants or dredged or fill material to waters of the United States except as authorized by an NPDES permit or dredged or fill material permit.
6. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto with exceptions.

7. Discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water objectives. (Dilution factors may apply)
8. Discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharge, with exceptions.
9. Dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner that may permit its being transported into the waters, with exceptions.
10. Discharge to a storm water conveyance system that is not composed entirely of "storm water", with exceptions.
11. Unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system.
12. Discharge of industrial wastes to conventional septic tank/subsurface disposal systems, with exceptions.
13. Discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state.
14. Discharge of any radiological, chemical, or biological warfare agent into waters of the state.
15. Discharge of waste into a natural or excavated site below historic water levels, with exceptions.
16. Discharge of sand, silt, clay, or untreated earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposit, turbidity, or discoloration in water of the state or threaten the use of such waters.
17. Discharge of treated sewage from vessels to small boat harbors.

EXEMPTED DISCHARGES

The City has adopted the following discharges as exempt unless prohibited in writing by the San Diego Regional Water Quality Control Board (SDRWQCB); the United States Environmental Protection Agency for the protection of the environment, water quality, public health, and safety; or result in or contribute to a violation of the SDRWQCB NPDES Order No. 2001-01. The following list is from the City of Carlsbad Municipal Code 15.12:

1. Water line flushing;
2. Landscape irrigation and lawn watering;
3. Diverted stream flows;
4. Rising ground waters or springs;
5. Uncontaminated pumped groundwater not subject to any applicable NPDES permit;
6. Discharges from potable water sources other than water main breaks;
7. Foundation and footing drains;
8. Air conditioning condensation;
9. Natural springs;
10. Water from crawl space pumps;
11. Individual residential car washing;
12. Flows from riparian habitats and wetlands;
13. De-chlorinated swimming pool discharges; and
14. Fire fighting.

The worksheet following this Section evaluates Non-Storm water Discharges and whether a Best Management Practice (BMP) is required in the City of Carlsbad. The worksheet indicates that most of the

Discharge Categories are not considered a significant source of pollutants. However, a number of Discharge Categories have historically been shown to potentially contain contaminants and BMPs are in progress as shown on the worksheet. Only the swimming pool water that is NOT de-chlorinated properly is prohibited.

City of Carlsbad
Exempt Non-Storm Water Discharge Evaluation Worksheet
Year 2001-2002

Discharge Category	**Significant Source?**			**Prohibit?**		**Best Management Practices Applied (required if discharge is prohibited)**
	Yes	**No**	**Unknown**	**Yes**	**No**	
Diverted stream flows		X			X	
Rising ground waters		X			X	
Springs		X			X	
Flows from riparian habitats		X			X	
Uncontaminated groundwater infiltration		X			X	
Water line flushing		X			X	
Landscape irrigation		X			X	To be developed and distributed
Irrigation water		X			X	To be developed and distributed
Lawn watering		X			X	
Discharges from potable water sources other than main breaks		X			X	
Uncontaminated pumped groundwater		X			X	
Foundation drains		X			X	
Water from crawl space pumps		X			X	
Footing drains		X			X	
Air conditioning condensation			X		X	To be determined if a significant source
Individual residential car washing		X			X	BMPs package complete. In distribution
De-chlorinated swimming pool discharges		X			X*	To be developed and distributed.

* - Prohibited if NOT de-chlorinated properly.

8.2 Dry Weather Analytical Monitoring

8.2.1 Purpose and Permit Requirements

Purpose

Outline a dry weather analytical monitoring program that will detect and assist in the elimination of illicit connections and illegal discharges to the Municipal Separate Storm Sewer System (MS4).

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Dry Weather Analytical Monitoring is as follows:

Section F.5.b
Each Copermittee shall conduct dry weather analytical monitoring of MS4 outfalls within its jurisdiction to detect illicit discharges and connections in accordance with Attachment E of this Order.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component Dry Weather Analytical Monitoring is as follows:

Section H.1.a.(7)(b)
A description of dry weather analytical monitoring to be conducted to detect illicit discharges and connection.

City Actions

1) Describe the dry weather analytical monitoring program that will be conducted to detect illicit discharges and connections.

8.2.2 Dry Weather Analytical Monitoring Actions

<u>Action #1</u> - Describe the dry weather analytical monitoring program that will be conducted to detect illicit discharges and connections.

The City of Carlsbad has conducted Dry Weather Analytical Monitoring for several years. The Dry Weather Monitoring Program outlined below is the result of years of experience conducting this program. The program has been modified to meet or exceed the requirements of the Permit while taking into account what has been learned about the system.

Overall, the objective of this program is to detect and eliminate illicit connections and illegal discharges (IC/IDs) in order to minimize the negative impacts on receiving water bodies. Illicit connections and illegal discharges have the potential to transport large amounts of various pollutants to MS4s through storm water runoff and non-storm water discharges. The Permit requires that all Copermittees establish an Illicit Discharge Detection and Elimination Component to actively seek and eliminate contaminated discharges to the MS4.

In order to determine specifically what types of discharges are prohibited, the City has established discharge prohibitions, non-storm water discharge exemptions (allowable discharges), and a process for evaluating non-storm water discharge exemptions. IC/IDs can be defined as the following:

> An ***illicit connection*** consists of any type of conveyance configuration connected to the MS4 (pipe, drain, channel, catch basin, grated inlet, junction box etc.), whether permitted or not, or any legitimate connection that is used for illegal discharge.
>
> An ***illegal discharge*** is the act of disposing of any pollutant to the MS4 that is prohibited by the City of Carlsbad. Illegal discharges may consist of wash water, sediment, spilled chemicals, sewage infiltration, and other pollutants entering the MS4 either intentionally or unintentionally, and all contribute to the degradation of local water quality.

Detection of IC/IDs will be accomplished using the following three mechanisms:

1. Conducting dry weather field screening and analytical monitoring.
2. Operating a public complaint hotline.
3. Inspecting local businesses and municipal facilities.

When an IC/ID is reported or detected, the City will investigate, inspect and appropriately follow-up in order to identify the source or sources of the discharge.

A Dry Weather Analytical Monitoring

A critical method of IC/ID detection is dry weather analytical and field screening monitoring. The Permit requires each Copermittee to complete the following tasks in developing a Dry Weather Analytical and Field Screening Monitoring Program:

- Develop and complete an MS4 map
- Select dry weather field screening and analytical monitoring stations
- Develop dry weather field screening and analytical procedures

- Submit a dry weather field screening and analytical monitoring map and procedures as part of the Jurisdictional URMP
- Conduct dry weather field screening and analytical monitoring. If monitoring indicates elevated pollutant levels in the MS4 and the possibility of an illicit connection or illegal discharge, then conduct follow-up identification investigation and elimination activities.
- Summarize and report the results of dry weather field screening and analytical monitoring including the identification and elimination of illicit connections and illegal discharges.

The City will use dry weather field and analytical monitoring information to characterize dry weather discharges in the MS4 and identify conveyances that are discharging elevated levels of pollutants. Follow-up studies and source investigations will be conducted as necessary, to detect and eliminate the sources of these pollutants.

There are three components to the dry weather-monitoring program:

1. Field screening observations
2. Field screening analytical monitoring
3. Laboratory analytical monitoring.

Field screening observations include various site descriptions and a series of qualitative (mainly visual) observations of physical and biological conditions at the site. Field screening monitoring includes determinations of several water quality parameters and flow. The analytical monitoring component involves the collection of samples for a more extensive laboratory analysis of conventional, priority and bacteriological pollutants that can cause water quality degradation. The presence of abnormal conditions in any of the three dry weather-monitoring components is justification for initiating a pollutant source identification investigation. Results of the monitoring program will be included in the City of Carlsbad JURMP Annual Report.

A.1 Sampling Locations

The City of Carlsbad has identified 60 primary monitoring stations where data will be collected during the dry weather analytical and field screening-monitoring program. Additionally, 14 alternate stations have been identified that will be monitored if any of the primary stations exhibit no flow or ponded water. Of these 74 stations, 62 have been monitored during previous dry weather monitoring programs, and 12 have been recently added for monitoring in 2002. The selected primary and alternate monitoring stations, their locations, land-use and drainage areas are presented in Tables 8-1 and 8-2, respectively at the end of this section. More specific information, including a complete map of the MS4 system, primary and alternate sampling station locations, and drainage basins, is included as Figure 8-1. Dry weather monitoring stations were selected by considering the following criteria:

- Drainage areas
- Land use
- Critical locations / areas (Environmentally Sensitive Areas)
- Previous or suspected problem areas
- Accessibility
- Safety
- Hydrologic variables (flow, groundwater, etc.)

A.2 Sampling Frequencies

Dry weather monitoring will be conducted at each primary sampling station at least once during the dry season (May 1 – September 30). Monitoring will not be conducted within 72 hours after any rain event or if local hydrologic conditions indicate that storm flow is still occurring at a site after a rain event. Grab samples will be collected for field analysis at each station where there is ponded or flowing water. An additional set of grab samples will be collected for laboratory analysis at a minimum of 25% of the sites where ponded or flowing water is observed.

A.3 Sampling Procedures

Field screening and analytical sampling will be conducted according to the procedures outlined in the Dry Weather Monitoring Sampling Manual (Appendix F). Field personnel will have a copy of these procedures during all storm water field operations. Additional field reference materials will be available at all times including MS4 maps, contact numbers, and field equipment operating manuals and procedures.

A.4 Field Screening and Laboratory Analytical Monitoring

All field screening and laboratory analytical monitoring results will be recorded on a Dry Weather Storm Drain Monitoring Data and Observation Sheet (Form 8-1) and follow the procedures given below:

1. Field Screening

Field screening will consist of a series of qualitative field observations, flow measurement, and field analyses of selected water quality parameters. Information relating to weather conditions, the amount of time since last rainfall or storm discharge, and the type of storm water conveyance will also be recorded. Specific observations and results of the field water quality analyses will be recorded on the field data sheet. The data sheet will also serve as a record of the field visit and will be completed for every site visit regardless of whether samples are collected. Laboratory analytical monitoring results will be recorded on the data sheet at a later date, which will be submitted to the RWQCB as part of the dry weather monitoring report for the City of Carlsbad.

a. Qualitative Observations

Qualitative field observations will be made during each site visit whether or not ponded or flowing water is observed. These observations are intended to provide a general assessment of the site and include parameters like odor, water clarity, the presence of floatables, visible deposits, stains, and biological status. Evidence of present or past illicit connections and illegal discharges to the MS4 may be ascertained by careful field observations. Each field screening location will be photographed to provide additional information and documentation of site conditions.

b. Flow Measurement

Flow measurements will be used to estimate pollutant mass loading, prioritize storm drains for future investigation, and identify significant changes in discharge that may be indicative of an illegal release upstream. Field methods will be employed to estimate discharge rates, as described in Form 8-2.

c. Field water quality analyses

At each site with ponded or flowing water, grab samples will be collected and analyzed in the field for the following constituents:

- Specific conductance/Total dissolved solids (TDS)
- Temperature
- pH
- Turbidity
- Surfactants (MBAS)*
- Nitrate-N
- Ammonia-N
- Reactive Phosphorus (Ortho-P)

* Due to the importance of surfactants, the City will test this parameter both in field and laboratory analyses.

2. Analytical Monitoring

At a minimum of 25% of the sites where ponded or flowing water is observed, grab samples will be collected and submitted to a California Department of Health Services certified laboratory for analysis of the following constituents using the standard methods presented in Table 8-3:

- Total Hardness
- Surfactants (MBAS)
- Oil and Grease
- Diazinon and Chlorpyrifos
- Cadmium (Dissolved)
- Copper (Dissolved)
- Lead (Dissolved)
- Zinc (Dissolved)
- Enterococcus bacteria
- Total Coliform bacteria
- Fecal Coliform bacteria

3. Special Studies for 2002

As part of the 2002 dry weather monitoring, the City of Carlsbad will conduct a special study to evaluate the reliability of field test methods for nitrate-nitrogen, ammonia-nitrogen and turbidity. The study will involve collecting replicate samples and comparing results obtained in the field with those of a certified laboratory. Based on the results of the study, the City will determine whether field analytical methods provide adequate accuracy and precision for analysis of the three constituents.

A "sample" Chain of Custody Form 8-3 is included. Equivalent forms may be used by the City depending on which laboratory is under contract.

A.5 Reporting

Beginning May 1, 2002, the City will begin conducting dry weather analytical and field screening monitoring in accordance with the procedures outlined above. The City will collect data during the period of May 1 – September 30 each year and report the results of the dry weather monitoring in the unified Jurisdictional URMP Annual Report, which will be submitted to the RWQCB by January 31, 2003 and every January 31 thereafter.

B IC/ID Identification

The City of Carlsbad will utilize the following three mechanisms to identify illicit connections and illegal discharges to municipal MS4s:

- Dry Weather Analytical and Field Screening Monitoring
- Public complaints and referrals
- Inspections of businesses and municipal facilities

B.1 Dry Weather Analytical and Field Screening Monitoring

As described above, the City will implement a Dry Weather Analytical and Field Screening Monitoring program to detect IC/IDs in the MS4. Dry weather field screening and analytical monitoring information will be used to characterize dry weather discharges in the MS4 and identify conveyances that are discharging elevated levels of pollutants. Based on results obtained from the program, investigations may be required to identify and eliminate the source of specific pollutants that exceed accepted action level concentrations (Table 8-4).

Investigation procedures are described in Section 8.3

TABLE 8-1: PRIMARY DRY WEATHER MONITORING STATIONS
(Sites noted with an asterisk (e.g. BV15*) have been added this year)

Agua Hedionda Lagoon Watershed			
Site Number	**Location**	**Description**	**Land Use**
AH03	East of railroad track, southwest of Maya Street.	72” RCP	Residential
AH08	Agua Hedionda Lagoon at Encinas Power Plant, east of Encinas Plant Tower	96” RCP	Industrial Commercial
AH 09	Behind 5115 Building Avenida Encinas	Manhole 36”RCP	Commercial
AH10	West of Avenida Encinas, near Manzano/El Arbol intersection, near railroad tracks	2-60” RCP	Commercial
AH11	Main line east of I-5, south of Cannon Road, west of the Car Country Carlsbad Sign	36” RCP	Commercial
AH12	Concrete channel east of I-5, west of the Dixon Ford parking lot off Paseo Del Norte	36”RCP	Commercial
AH13	Concrete channel west of Paseo del Norte, approximately 250 feet north of Pea Soup Anderson’s	2-48” RCP	Commercial
AH18	South of the Park Drive and Valencia Avenue Intersection	39” RCP	Residential
AH24	Kelly and Park Drive Intersection	Concrete channel	Residential
AH27	Between Pontiac Avenue and La Portalada Drive, north of Tamarack	Concrete channel	Residential

Agua Hedionda Lagoon Watershed			
Site Number	**Location**	**Description**	**Land Use**
AH28	50 yards east of the La Portalada Drive and Tamarack Avenue intersection, on the north side of Tamarack Ave.	2-60" RCP	Residential
AH30	East of Sierra Morena Avenue, south of Valewood	60"RCP	Residential
AH31	South of Chestnut, east of Sierra Morena Avenue	48" RCP	Residential
AH32	Intersection of Don Arturo and Don Porifirio Drive (in gated community)	Earthen and Concrete Channel	Residential
AH45	500 feet from the south Van Allen Way cul-de-sac, north east of the pond	84" RCP	Commercial
AH46	Outfall located at the north of the horse stable on Sunny Creek Rd	60"RCP	Industrial/Commercial
AH59	Sedimentation basin, approximately 1200 feet north of El Fuerte Street	48" RCP	Commercial
AH61	Northeast of 2875 Loker Avenue	Manhole, 36" RCP	Industrial
AH63*	Tamarack Ave., Hillside Dr., Park Dr., south of Calavo Ct., in east sidewalk	Manhole	Residential
AH65*	Tamarack Ave., Pontiac Dr., across from Southampton Rd.	Manhole	Residential

Batiquitos Lagoon (San Marcos Creek) Watershed			
Site Number	**Location**	**Description**	**Land Use**
BA02	Down in the sediment basin at the southwest corner of Navigator Cir. and Windrose Cir	36" RCP	Residential
BA03	End of Gabbiano on Batiquitos Lagoon Trail	72" RCP	Residential
BA04	In front of 7017 Nutmeg Avenue	Manhole, 42" RCP	Residential
BA06	Batiquitos Drive, midway between Poinsettia Lane and Daisy Avenue	Manhole, 36" RCP	Residential
BA07	Northeast of the intersection of Buttercup Road and Seascape Drive	Manhole, 54"RCP	Residential
BA13	Debris basin outlet to Batiquitos Lagoon, southwest of El Camino Real and Arenal Intersection	60" RCP	Residential
BA26	Between 2526 and 2532 Unicornio Street	Manhole, 42" RCP	Residential
BA27	100 feet into the canyon near the El Fuerte and Chorlito Intersection	42" CMP	Residential
BA32	In front of 2927 Luciernaga Street	Manhole, 42" RCP	Residential
BA34	South of Vista Mariana, in La Costa Golf Course	48" RCP	Residential
BA36	Southeast corner of La Costa Golf Course behind 7525 Gibraltar Street near Round Tree Apartments	48" RCP	Residential
BA40	30 feet southwest of the Melrose Drive and Rancho Santa Fe Road intersection	72" RCP	Commercial/Residential
BA41	(Northern edge) La Costa Canyon Park, in canyon; across from 3015 Pueblo Street	Manhole, 54" RCP	Residential
BA43	30 yards north of the El Camino Real and Levante Street intersection	60" CMP	Residential
BA47	Rancho Santa Fe Blvd. and Camino Alvaro intersection	Manhole	Residential
BA48	500 feet south of the intersection of Camino De Los Coches and Rancho Sante Fe Road	Outfall, 36" RCP	Residential
BA49	Northwest of Batiquitos Lagoon, east of Carlsbad Blvd	Manhole, 72"-81" RCP	Residential
BA51*	Alga Rd., east of El Camino Real, between 2035 and 2043	3 x 84" RCP	Residential
BA52*	Batiquitos Dr., east of Golden Star Lane, north of street inside detention basin	48" RCP	Residential

Buena Vista Lagoon Watershed			
Site Number	**Location**	**Description**	**Land Use**
BV02	East side of State St., south of the Carlsbad Blvd. and State St. intersection	2-48" RCP	Commercial
BV04A	East of Buena Vista Lagoon Ecological Reserve, on the east bank	Outfall, 27" RCP	Commercial
BV06	50 feet west of the S. Vista Way Bridge on the south side of Buena Vista Creek	Outfall 51" RCP	Commercial
BV09	50 yards north of the El Camino Real and Carlsbad Village Drive intersection on the center divider	Manhole	Commercial/ Residential
BV10	Southwest corner of the Carlsbad Village Drive and El Camino Real intersection	18" CMP	Residential
BV15*	Laguna Dr. and State St. intersection, across from 2531 State St.	Manhole	Commercial Industrial
BV16*	Marron Rd. Monroe St. intersection, across from The Olive Garden Restaurant	Manhole	Residential

ENCINAS CREEK WATERSHED			
Site Number	**Location**	**Description**	**Land Use**
EN02A	West of 6030 Avenida Encinas east of the Rail Road tracks	Earthen Channel	Industrial/ Commercial
EN02A-1	Behind 5600 Avenida Encinas near railroad tracks	Concrete Channel	Industrial/ Commercial
EN02B	Inside Encinas Wastewater Plant	Open Channel	Commercial
EN02C	North bank of Encinas Creek, underneath I-5 overpass. Access through Wastewater Plant	39" RCP	Commercial
EN09	Encinas Creek, south of Palomar Airport Road, on Laurel Tree Road	4-48" CMP	Commercial
EN14	Corner of Palomar Oaks Way and Camino Vida Roble, near 1911 Palomar Oaks Way	Manhole, 42" RCP	Commercial
EN14A	30 yards west of 1911 Palomar Oaks Way, in the canyon	48" RCP	Commercial
EN18	Behind 1979 Palomar Oaks Way	48" RCP	Commercial
EN19	Beside 1949 Palomar Oaks Way	Concrete Channel	Commercial
EN20	Across from 1979 Palomar Oaks Way	48" RCP	Commercial
EN21	Camino Vida Roble, midway between Palomar Airport Road and Owens Avenue	Manhole	Commercial
EN23	Northwest corner of Yarrow Drive and Camino Vida Roble intersection	5'x10' RCB	Commercial
EN24	Between 2225 and 2265 Camino Vida Roble, in front of the Post Office	24" RCP	Industrial/ Commercial

ENCINAS CREEK WATERSHED			
Site Number	**Location**	**Description**	**Land Use**
EN31	10 yards north of 1925 Palomar Oaks Way, in the canyon	24" RCP	Industrial/ Commercial

TABLE 8-2: ALTERNATE DRY WEATHER MONITORING STATIONS

(Sites noted with an asterisk (e.g. AH26*) have been added this year)

Site Number	Location	Description	Land Use
AH26	200 feet northeast of the Camino Real and Kelly Drive intersection	4.5 Feet Earthen Channel	Commercial/ Residential
AH28A	50 yards east of the La Portalada Drive and Tamarack Avenue intersection, on the north side of Tamarack Ave.	8'x5' RCB	Residential
AH56	In front of 2251 Faraday Avenue	Manhole	Commercial
AH64*	Kelly Dr. and Hillside Dr., intersection in front of 4870, on the sidewalk	Manhole	Residential School
AH66*	El Camino Real across from Cannon Rd., in Parkway Nursery Road, behind Rancho Carlsbad Community	Open Channel	Residential Open space
AH67*	Rutherford Rd. and Aston Ave. intersection, close to the sidewalk	Manhole	Planned Industrial
BA31	Behind 7490 and 7497 Via de Fortuna, inside gated community	72" RCP	Residential
BA50*	La Costa Ave., between Romeria St. and Cadencia St. in front of 3105	Grated catch basin	Residential
BA 53*	Batiquitos Dr., northeast corner of Batiquitos Dr. and Aviara Dr., intersection, inside detention basin	48" RCP	Residential
BV08	South bank of Buena Vista Creek, ten yards west of El Camino Real	66" RCP	Commercial/ Residential
BV14	10 yards west of the Concord and Vancouver Street intersection, northwest side	Manhole, 36" RCP	Residential
EN13	Behind 5860 Dryden Lane, inside Callaway Test Center	36" RCP	Commercial
EN16	Southeast of the intersection of Palomar Airport Road and Palomar Oaks Way	Open Channel	Commercial
EN32*	Palomar Airport Rd., Paseo Del Norte, Camino Del Parque, Caminito Del Sol, in front of 801-802	Manhole	Residential

TABLE 8-3
SUMMARY OF LABORATORY SAMPLING AND ANALYSIS METHODS

Physical and Inorganic Non-Metals	Analytical Method	Container	Volume (mL)	Preservative (Always @ 4o C)	Holding Time
TDS	SM 2540C	P	100		7 d
TSS	SM 2540D	P	100		7 d
Turbidity	SM 2130A	P	100		48 h
Alkalinity or Hardness	SM 2320B	P	100		14 d
pH	EPA 150.1	P	10		Field
Conductivity	SM2510B	P	20		28 d
Temperature		N/A			Field
Phosphorous, total	SM4500PE	P	100	H_2SO_4	28 d
Phosphorous, dissolved / reactive	SM4500PE	P	100	H_2SO_4	48 h
Nitrate	SM 4500 NO3 E	P	100		48 h
Nitrite	SM 4500 NO2 B	P	100		48 h
TKN	EPA 351.1	P	200		28 d
Ammonia	SM4500 NH3 D	P	500	H_2SO_4	28 d
BOD	EPA 405.1	P	1000		48 h
COD	EPA 410.4	P	10	H_2SO_4	28 d
Chlorine, Residual	SM4500 Cl G	N/A			Field
Organics					
*Petroleum Hydrocarbons, total (d + g)	EPA 8015	G + 2V	250 + 40 (2)	HCl	14 d
Oil and Grease	EPA 413.1	G	500	HCl	14 d
Diazinon	EPA 8140	G	1000		7 d
Chlorpyrifos	EPA 8140				
Methylene Blue Substances (MBAS)	SM 5540 C	P	250		48 h
Organochlorine Pesticides and PCBs	EPA 8081, 8082	G	1000		7 d
*Volatile Organic Compounds	EPA 8260	2V	40 (2)	HCl	14 d
Semivolatile Organic Compounds	EPA 8270	G	1000		7 d
Metals / Toxics					
Antimony	EPA 6010	P	500	HNO_3	6 m
Arsenic	EPA 6020	P			
Cadmium	EPA 6010	P			
Chromium	EPA 6010	P			
Copper	EPA 6010	P			
Lead	EPA 6010	P			
Nickel	EPA 6010	P			
Zinc	EPA 6010	P			
Thallium	EPA 7470	P			
Silver	EPA 6020	P			
Mercury	EPA 6010	P			28 d
Cyanide	SM 4500 CN C	P	500	NaOH	14 d
Phenols (from SVOC's)	EPA 8270	G	1000		7 d
Bacteriological (including dilutions)					
Coliform, total	SM 9221	P (sterile)	125	$Na_2S_2O_3$	6 h
Coliform, fecal	SM 9221	P (sterile)			
Coliform, *E Coli*		P (sterile)	125		
Enterococcus	SM 9230	P (sterile)	125		
Streptococcus	SM 9230	P (sterile)			

*ZHS (Zero Head Space Required) V=VOA / G=Amber Glass / P=Plastic

TABLE 8-4
ACTION LEVELS FOR FIELD SCREENING AND LABORATORY PARAMETERS

Field Screening Analytes	Action Levels[1]	Source/ Notes
pH	<6.5 or >9.0	Basin Plan, w/ allowance for elevated pH due to excessive photosynthesis. Elevated pH is especially problematic in combination with ammonia.
orthophosphate-P (mg/L)	2.0	USEPA Multi-sector General Permit
nitrate-N (mg/L)	10.0	Basin Plan, and drinking water standards
Ammonia-N (mg/L)	1.0	Based on Workgroup experience. May also consider unionized ammonia fraction
Turbidity (NTU)[2]	Best Professional Judgment	WQOs relevant to inland surface waters are not available. Base judgment on channel type and bottom, since last rain, backgroun levels, and most importantly visual observation (e.g. unusual colors and lack of clarity), and unusual odors.
Temperature (^{o}F or C)	Best Professional Judgment	Base judgment on season, air temperature, channel type, shading, etc.
Conductivity (umhos/cm) or TDS (mg/L)	Best Professional Judgment	Values > 5,000 umhos/cm may indicate IC/ID however; EC may be highly elevated in some regions due to high TDS groundwater exfiltration to surface water, mineral dissolution, drought, and seawater intrusion. Normal source ID and discharge elimination works is not effective in these situations. Knowledge of area background conditions is important. Values <750 may indicate excessive potable water discharge or flushing.

Laboratory Analytes	Action Levels	Source/ Notes
MBAS (mg/L)	1.0	Basin Plan, w/ allowance based on Workgroup field experience and possible field reagent interferences
Oil and Grease (mg/L)	15	USEPA Multi-sector General Permit. If a petroleum sheen is observed, the sample should be collected from the water surface. Visual observations may justify immediate investigation.
Diazinon (ug/L)	*0.5*	Response to diazinon and chlorpyrifos levels above 0.5 µg/L should focus on education and outreach to potential dischargers in the target drainage basin. Highly elevated levels should be investigated aggressively as with other potential IC/Ids.
Chlorpyrifos (ug/L)	*0.5*	
Dissolved Cadmium (ug/L)	*California Toxics Rule*	Use California Toxics Rule, 1-hour criteria to determine appropriate action level for individual samples. Table provides benchmarks based on hardness and dissolved metals concentration. For example, at 300 mg/L hardness, the following action levels would apply: Cd – 14 ppb; CU – 38 ppb; Pb – 209 ppb; and Zn – 297 ppb.
Dissolved Copper (ug/L)	*California Toxics Rule*	
Dissolved Lead (ug/L)	*California Toxics Rule*	
Dissolved Zinc (ug/L)	*California Toxicx Rule*	
Total Coliform (MPN/ 100 mls)	*50,000*	Action levels are based on upper 90% confidence level of Copermittees 2002 dry weather analytical monitoring data.
Fecal Coliform (MPN/ 100 mls)	*20,000*	
Enterococcus (MPN/ 100 mls)	*10,000*	

[1]The referenced action levels should not be the sole criteria for initiating a source identification investigation. Dry weather monitoring data should be interpreted using a variety of available information. Factors that should be considered include within-site and between-site sample variability.

[3] The statistical outlier test uses the mean and standard deviation of a dry weather data set to determine whether a sample concentration exceeds a given confidence interval (usually 90 or 95%). Those readings that are above the confidence interval **and** exceed the referenced guidelines are identified as outliers and are appropriate for source identification.

FORM 8-1

City of Carlsbad

Dry Weather Storm Drain Monitoring Data and Observation Sheet

San Diego Municipal Storm Water Permit, Order No. 2001-01

WATERSHED ID_____

DATE/TIME_____

WEATHER INFORMATION

MONITOR'S NAME_____

Light Conditions Sunny Overcast Partly Cloudy

Last Rain > 72 hours < 72 hours < 3 hours **Precipitation** > 0.1" < 0.1"

Site Description **Location**_____

Earthen Drainage **Concrete Channel** **SD Outfall** **Manhole** **Catchbasin**

Other_____

Flow Estimation **Flow** Yes / No / Ponded **Evidence of overland flow near sampling location?** Yes / No

Area X Velocity (creek / channel)	**Filling a Bottle**	**Area X Velocity (pipe)**
1. Width (cm - ft - in)_____	1. Volume _____ (mL - L - oz)	1. Pipe Diameter _____ (ft/in)
2. Depth (cm - ft - in)_____	2. Time _____ (sec)	2. Depth _____
3. Velocity (cm - ft - in / sec)_____		3. Velocity _____
4. Flow [ ]	***See formula on back	***See formula on back

Visuals	Photo Taken	yes / no	Pic# _____	
Odor	Chemical	Sewage	Rotten Eggs	None/Other_____
Color	Greyish	Greenish	Brownish	None/Other_____
Clarity	Clear	Cloudy		Other_____
Floatables	Oily / Rainbow	Trash	Bubbles	None/Other_____
Vegetation	Limited	Extensive		None/Other_____
Biology	Mosquitoes	Algae	Snails / Fish	None/Other_____

Draw sample location / Picture

***Field Screening**

Water Temp (°C)_____ NH_3-N_____ NO_3-N_____ React P-P_____

pH (pH units)_____ TURB_____ EC / TDS_____ DO_____ MBAS_____

***Laboratory Analysis**

Cd (diss)_____ Cu (diss)_____ Pb (diss)_____ Zn (diss)_____

MBAS_____ Hardness_____ O/G_____ Diazinon(µg/L)_____

T. Coliform_____(MPN) Fec. Col_____(MPN) Entero_____(MPN) Chlorpyrifos(µg/L)_____

Lab Samples taken Yes / No **Bottle ID#'s** _____ _____ _____

Comments _____

Observations _____

_____

_____

_____

FORM 8-2
METHODS OF FLOW MEASUREMENT

Calculating the Area (a) of the Cross Section of a Circular Pipe Flowing Partially Full

D = Depth of water a = area of water in partially filled pipe
d = diameter of the pipe Ta = Tabulated Value Then a = Ta*d2

D/d	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0013	0.0037	0.0069	0.0105	0.0147	0.0192	0.0242	0.0294	0.0350
0.1	0.0409	0.0470	0.0534	0.0600	0.0668	0.0739	0.0817	0.0885	0.0951	0.1039
0.2	0.1118	0.1199	0.1281	0.1365	0.1440	0.1535	0.1623	0.1711	0.1800	0.1890
0.3	0.1982	0.2074	0.2187	0.2280	0.2355	0.2450	0.2540	0.2642	0.2780	0.2836
0.4	0.2934	0.3032	0.3130	0.3220	0.3328	0.3428	0.3527	0.3627	0.3727	0.3827
0.5	0.3980	0.4030	0.4130	0.4230	0.4330	0.4430	0.4520	0.4620	0.4720	0.4820
0.6	0.4920	0.5020	0.5120	0.5210	0.5310	0.5400	0.5500	0.5590	0.5690	0.5780
0.7	0.5870	0.5960	0.6050	0.6140	0.6230	0.6320	0.6400	0.6490	0.6570	0.6660
0.8	0.6740	0.6810	0.6890	0.6970	0.7040	0.7120	0.7190	0.7250	0.7320	0.7360
0.9	0.7450	0.7500	0.7560	0.7610	0.7660	0.7710	0.7750	0.7790	0.7820	0.7840

AREA x VELOCITY

(CREEK/CHANNEL METHOD)

a. Measure the width, depth, and velocity of the water.

b. Convert each value to a common unit (i.e. all measurements converted to cm, ft, or in.).

c. Multiply the width * depth * velocity to determine flow.

d. Multiply the flow by 0.8 for creek measurements –or-- 0.9 for concrete channel measurements to account for channel roughness.

e. The results if measured in

- Ft = Ft^3/sec
- cm = cm^3/sec (mL/sec)
- in = in^3/sec

f. Convert to desired value.

TIME REQUIRED TO FILL A KNOWN VOLUME

(FILL A BOTTLE METHOD)

1. Determine volume/capacity of the sample bottle.
2. Measure time required to fill the bottle.
3. Flow will be determined by initial volume units:
   - mL/s
   - oz/s
4. Convert to desired value.

AREA x VELOCITY

(PARTIALLY FILLED PIPE)

g. All measurement must be converted to a common unit before calculation (ft, in, or cm).

h. Let D = water depth.

i. Let d = *inside* pipe diameter

j. Calculate D/d.

k. Find the tabulated (Ta) value on the partially filled pipe formula chart above using the D/d value. (i.e. if D/d = 0.263 then Ta =.1623).

l. Find the area using the formula $a = Ta*d^2$.

m. Multiply area (a) by the water velocity.

n. Convert to desired value.

SAE / Metric Unit Conversion

0.083 ft	=	1 in	=	2.54 cm
0.1337 ft^3	**=**	**1 gal**	**=**	**128 oz**
			=	**3.785 L**
0.0078 gal	**=**	**1 oz**	**=**	**.0011 ft^3**
1000 cm^3	**=**	**1 L**	**=**	**1000 mL**

Form 8-3

CITY OF CARLSBAD	405 Oak Avenue Carlsbad CA 92008 (760)434-2980	**Chain of Custody**	Control Number:
Project Manager:		Bill To:	Sample Disposal Instructions: Laboratory Disposal
Project Name:		Company:	Shipment Method: Federal Express
Project Number:		Address: Same As Above	**Comments:**
Cooler Nos: 006, 007, 008	Samples sent to:	Lab Use	
QC Level:	TAT: **2 weeks**	Preservatives	

Sample Data				Matrix					
ID Number	Description for City use only	Date	Time Collected	Sediment	Tissue	Water	Other	HOLD	I

For Lab Use

Samplers Signature		Date	Lab Number:
Relinquished By:		Date	Do COC match samples: Y or N
			Broken container: Y or N
Received By:		Date	Received within holding time: Y or N
			COC seal intact: Y or N
			If any YES, AMEC contacted: Y or N
Shipper's ID #:		Date	Date contacted: _____/_____/_____
			Temperature °C ____

8.3 Investigation/Inspection and Follow-up

8.3.1 Purpose and Permit Requirements

Purpose

The purpose of this Permit requirement is to define the investigation and inspection process of illicit discharges in terms of frequency and severity of the discharge.

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component Investigation/Inspection and Follow-up is as follows:

Section F.5.c

Each Copermittee shall investigate and inspect any portion of the MS4 that, based on dry weather analytical monitoring results or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge[s] identified in Section B of this Order). Each Copermittee shall establish criteria to identify portions of the system where such follow-up investigations are appropriate.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component Investigation/Inspection and Follow-up is as follows:

Section H.1.a.(7)(c)

A description of investigation and inspection procedures to follow-up on dry weather analytical monitoring results or other information which indicate potential for illicit discharges and connections

City Actions

1) A description of investigation and inspection procedures to follow-up on information that indicate a potential for illicit discharges and connections.

8.3.2 Investigation/Inspection and Follow-up Actions

<u>Action #1</u> - A description of investigation and inspection procedures to follow-up on information that indicate a potential for illicit discharges and connections.

Based on dry weather field screening and analytical results, follow-up investigations may be necessary to identify and eliminate pollutant sources. In order to determine whether a source investigation is necessary, the following three methods will be employed: (1) Numeric action levels; (2) Statistical confidence intervals; and (3) Best professional judgment. All three approaches are described in detail below and presented in Table 8-4. Table 8-4 reflects the current action level table that is being developed regionally by the monitoring workgroup. This table will be updated as changes are made at the regional level.

1. **Numeric action levels**

   Numeric action levels will be used as the primary approach for interpreting pH, orthophosphate, nitrate, ammonia, conductivity or TDS, MBAS, oil and grease, Diazinon, and Chlorpyrifos analytical results (Table 8-4). If these action levels are exceeded, then a source identification investigation will be initiated unless best professional judgment indicates otherwise. Dissolved trace metals (Cd, Cu, Pb, and Zn) are compared to the California Toxics Rule 1-hour criteria in combination with hardness levels.

2. **Statistical confidence interval**

   Identification of highly elevated concentrations using confidence intervals is the primary approach for interpreting total and fecal coliform bacteria and enterococcus data. Dry weather data from all copermittees is being combined so that confidence intervals and other statistical analyses can be completed in March 2003. The adopted action level table will be used during the 2003 dry weather testing.

3. **Best professional judgment (BPJ)**

   Best professional judgment will be utilized as the primary approach for interpreting turbidity and water temperature data, and the secondary approach for interpreting the results of all other field and laboratory analyses. BPJ is encouraged by the monitoring workgroup as it allows the use of all monitoring tools (observations, field screening, analytical data, discharge, site characteristics, etc.) to determine if conditions warrant follow-up.

When the results of field screening sampling exceed the action levels or confidence intervals presented in Table 8-4, the City will initially confirm the results by resampling. Field analytical results will be confirmed by resampling within between 4 and 24 hours after the initial sample and source investigation will begin thereafter. When the results of a laboratory analytical sample exceed the action levels or confidence intervals, source investigation will begin as soon as possible and another sample will be collected and analyzed to confirm initial results. If visual and /or analytical evidence of gross contamination is present at a site (e.g., substantial petroleum sheen, extremely high ammonia concentration, evidence of a sewage release) then an immediate source identification investigation will be initiated.

The City of Carlsbad proposes to address 100% of reported illicit discharges and connections for investigation, enforcement, and reporting although a performance goal of 95% is expected to meet Permit

requirements. The 95% performance goal allows for accounting of investigations "in-progress" where the source was has not been identified at the end of the reporting year. Open investigations that cannot be resolved after 90 days due to the lack of additional information or repeat of the incident or event will be closed. Staff may use the information, if a repeat incident is found at a later date.

Sources of complaints or referrals of illicit connections or illegal discharges include:

- Observations (during routine and non-routine inspections of commercial/industrial businesses),
- Public Reporting (known or suspected discharges), and
- Detections (Dry Weather Monitoring Program-Section 8.2).

The process of investigation will follow the diagram provided at the end of this Section and follows the general approach below. To determine whether a discharge or connection is illicit, the City will attempt to identify the source. Determining the source will follow the process outlined below:

- Search the area for any physical, chemical, or biological signs of the reported or field incident
- Explore the possible scenarios of how the material or disturbance occurred
- Identify potential sources and verify origin
- Examine the drainage system area for other possibilities
- Inquire to available businesses or witnesses what had occurred.
- Document findings and information.

Based on each case of observed, reported, or verified detected illicit discharge location, pollutants, concentrations, and specific impacts, the City of Carlsbad will identify and address the following:

1). Evaluation of Discharge

- Discharge composition,
- Discharge volume,
- Frequency and abundance, and
- Duration of Discharge
- Determine Corrective Action

2). Responsible City Department or Agency

- Efficient and comprehensive follow-up
- Develop and refine routines and strategies

3). Documentation

- Record applicable and pertinent information

4). Information Storage

- Viable, long-term information retrieval

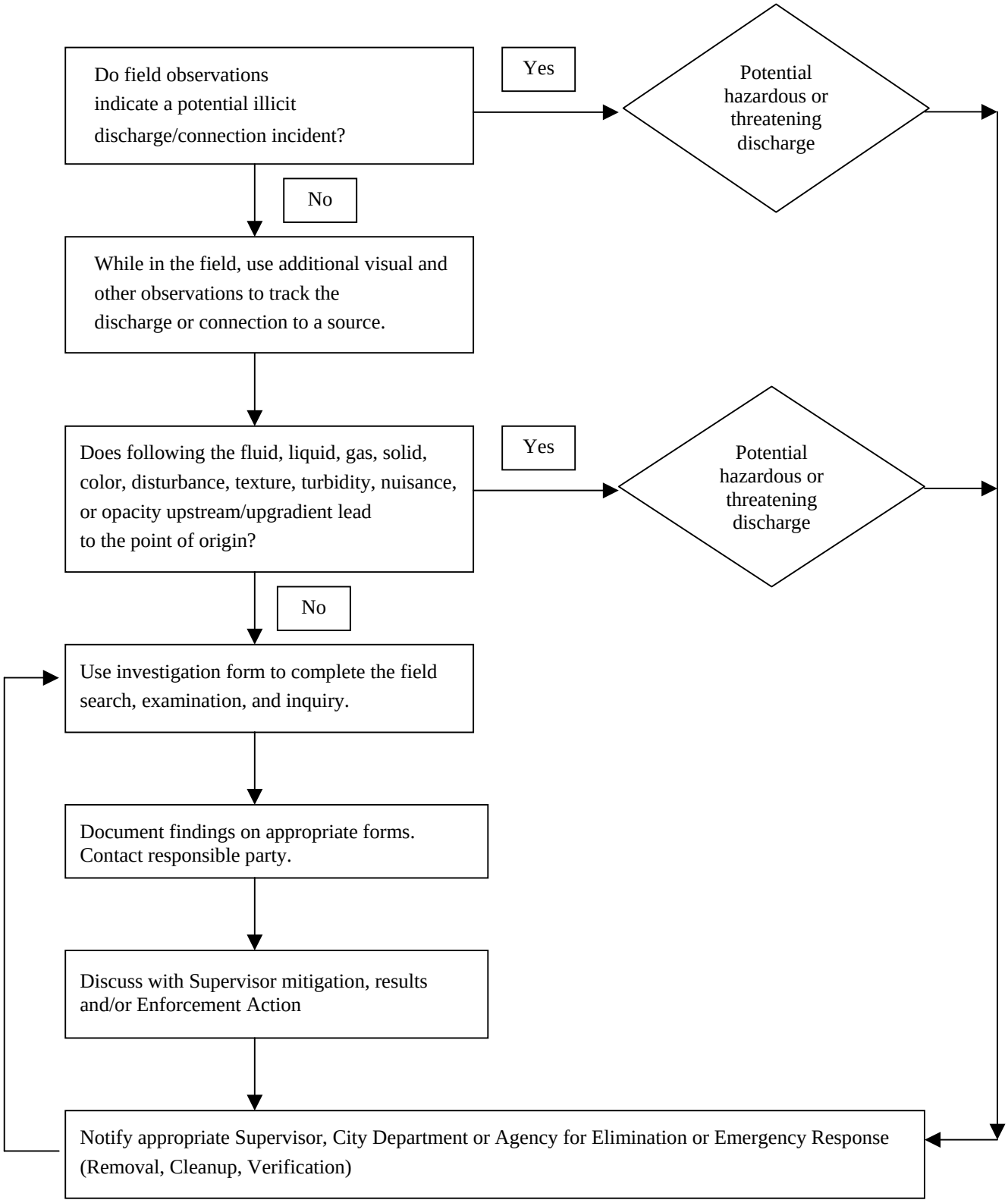
5). Education and Training

- Use experience and eliminate recidivism (repeat offenses)
- Present number of reported, verified, and eliminated incidents in the Annual Report.

The following flow diagram indicates the series to events that should happen once a potential illicit discharge or connection has been identified.

Education and Outreach strategies are described in detail in Section 9 of this JURMP.

ILLICIT DISCHARGE/CONNECTION DISCOVERY AND REPORT FLOW



Inspections of businesses and municipal facilities

As the final method for detecting illicit connections and illegal discharges, the City will implement an inspection program to ensure compliance of all industrial and commercial facilities, municipal facilities, and construction sites that have been determined to pose significant threat to water quality.

Investigation Procedures

Illicit connections and illegal discharges are often temporary in nature and require immediate attention and corrective action. Unless directly observed by municipal staff, IC/IDs will require an investigation to verify whether a discharge is occurring. Regardless of how they are identified, each potential IC/ID received by the City will be investigated and eliminated. Initially, field inspections will be conducted to determine whether an illicit discharge is occurring or has occurred. The investigation will attempt to establish how, when, why, and where there was a discharge as well as the volume and potential for harm from the discharge. In many instances, since the initial field investigation will not identify a specific source of contamination, further field investigation will be required. Procedures for initial field investigations and specific source investigations are described below.

Field Investigation Procedure

Complaints or referrals are received via a phone call, email, the Storm Water Hotline or other mechanisms. Details on the Public Participation Component are found in Section 8.7.2 and Component 10 of this JURMP.

Initial field investigations will consist of the following:

1. **Pre-Investigation Preparation**

   Before leaving for an investigation, staff will assemble needed information and equipment. Staff will be prepared to conduct field-screening analyses, sample for laboratory analysis, and document the discharge for any future enforcement. The following equipment may be used in accomplishing these tasks:

   - ***Field Screening Analysis***. Field screening equipment should include a pH meter, thermometer and a commercial storm water pollutant screening kit that can detect for reactive phosphorus, nitrate nitrogen, ammonium nitrogen, specific conductance, and turbidity. Sample containers, a sample collection pole and a hand pump will be needed as well as a tool to remove access hole covers.

   - ***Laboratory Analysis***. Sample cooler and ice, appropriate sample containers and bottles, labels and chain of custody forms will be needed.

   - ***Documentation***. Camera, notebook, pens, Notice of Violation forms and educational materials will be needed.

2. **Field Investigation**

   In most cases, investigators will need to conduct a field investigation to confirm if a discharge is occurring or has occurred. If the complaint is determined to be unjustified, it

will be documented as such. If an IC/ID is confirmed, it will be documented, the discharger will be contacted, and appropriate actions will be taken to eliminate the violation. If the investigator determines that the discharge is exempted, the responsible party will be contacted to discuss any applicable restrictions or BMP requirements. All violations will be documented in writing. If a responsible party is available, a warning notice or notice of violation may be issued from the field during the investigation. If the responsible party is unavailable, they will be contacted as expediently as possible (e.g., via telephone, e-mail, or mail). All contact with responsible parties, including meetings, face-to-face discussions, and telephone calls will be documented with a narrative describing the topics that were discussed.

Business information and activities may be available through previous storm water program records or City business license records. If possible, the address will be located on a map, and nearby receiving waters identified. Appropriate educational materials will be distributed and documentation of the investigation will be collected.

Source Investigation Procedures

If field investigations do not reveal a specific source of contamination, further investigation will be conducted which may include the following steps:

- Tracing flows or discharges upstream
- Conducting field screening sampling
- Contacting potential dischargers or sources
- Sampling for laboratory analysis
- Reviewing previous investigation records
- Documenting source Investigations

General procedures for each step are listed below:

1. Tracing Flows or Discharges Upstream

Dry weather flows will generally be traced from the location where they are first observed in an upstream direction along the conveyance system. City investigators will consult the City's drainage system maps. For below ground systems, it may be necessary to follow flows from the outfall or manhole to the next manhole with a junction. Manholes do not always need to be checked if there are no junctions between them. Field staff will always be aware of the surrounding areas and look for water flowing in gutters and streets. Areas where illegal dumping may typically occur include parking lots and garages behind buildings and warehouses.

When investigating a location with multiple inlets, if flow is observed from only one, the investigator will continue tracking from that inlet. If flow is observed coming from more than one inlet, the investigator will track them one at a time, using visual observations, odors, and/or field screening sampling to determine the order of investigation. It is generally easiest to track the largest flows first, but if they are about the same size, the investigator will start with the one that is easiest, shortest, or with the least number of junctions, or track those originating from areas with the greatest potential for illegal discharges.

If the source of flow is found, the site visit will be documented and appropriate actions taken to ensure that the IC/ID is eliminated. If the flow originates in another jurisdiction, investigators will immediately inform them of the situation.

If initially unable to locate the source of the flow (e.g., it disappears between manholes; the pipe network, or channel terminates, etc.) the following possibilities may be considered. First the flow may originate from a storm gutter. Catch basins and gutters between manholes will be checked for evidence of flows such as runoff from steam-cleaning operations, car washing, irrigation runoff, etc. There may also be a new illicit connection to the system, possibly between manholes. In this case areas in the road that have been dug up and re-paved and areas of new construction will be investigated. Investigators will also check with the City Public Works Department for any recent work that may have been done in the area. Finally, investigators will look for evidence of recent or past dumping such as wet or stained pavement or gutters.

In most cases, it should be possible to determine the source of the flow using the methods described. These will be preferred whenever possible since they are quick, safe, and inexpensive. If the source is still not found, the field investigation will be documented and the location of the last place that flow was observed marked on a map so that the area can be investigated again at a later date. The following additional source investigation techniques may be considered at a later time.

- Water Discharges. This involves discharging water from a potential source and noting the location of the downstream discharge to establish a hydraulic connection between the source and the discharge connection. Water discharges are preferred to dye testing and smoke testing, described below, and can be utilized under most conditions.

- Dye Testing. Dye testing can also be conducted to confirm hydraulic connections. This involves discharging fluorescent dye at the source of a potential IC/ID. This procedure should be performed sparingly because of the need to inform the surrounding public and appropriate regulatory agencies of the cause of downstream discoloration in the storm drain system or receiving waters.

- Smoke Testing. Smoke test may also be used to confirm the hydraulic connection between a potential source and a downstream location. Smoke tests are used only on underground storm water conveyance facilities, and should also be performed sparingly because of the need to inform the surrounding public and agencies of the cause for smoke coming from the storm drain system.

- Video Monitoring. Video inspections involve the deployment of a mobile video camera into an underground storm water conveyance facility. The mobile video camera will "walk" the drain and record observations on a videocassette. Generally, public notifications are not usually necessary with this method.

If the flow under investigation is suspected to be sewage-related, this may often be confirmed through the presence of odor and visible solids. However, since this may often not be readily evident, the following may also be utilized in determining whether flows are sewage-related:

- Field Screening for Ammonia. Sewage frequently contains ammonia levels of 30 ppm or greater. This can be measured with an inexpensive field screening kit.

- Bacteria Testing. Sewage is high in total and fecal coliforms and enterococci. Many sewage treatment plants, the County Public Health Laboratory, and commercial laboratories routinely conduct these indicator analyses.

2. Conducting Field Screening Sampling

During a source investigation, samples may be collected for field screening analysis and used for comparison with downstream samples already collected. This may include any or all of the analyses conducted during routine field screening, or other field tests that the City determines are necessary. It may not be necessary to conduct all of the field screening tests. Investigators will base this decision on results obtained at the downstream site. All sampling and analysis conducted during source investigations will be documented appropriately. The investigator will follow chain-of-custody procedures, deliver samples within the expiration timeframe, and request appropriate analyses of the laboratory.

3. Contacting Potential Dischargers or Sources

If a specific discharger is identified as the source of a flow, they will be contacted by the staff in the field and informed of the discharge and applicable remedies. Investigators will work with the responsible party to find out what they are discharging and, if possible, whether or not the discharge is permitted. If the source is determined to be exempted or permitted, this information will be recorded. If the flow is determined to be illegal, or its status cannot be determined, staff will document the findings or violation and require the responsible party to discontinue the IC/ID. At that time, a decision will also be made as to whether samples should be collected for laboratory analysis.

4. Sampling for Laboratory Analysis

In some situations (e.g., for enforcement, etc.) samples may need to be collected for laboratory analysis. In these cases, sample collection will always be conducted according to applicable evidence sample collection protocols. Samples will be documented on the City's field data form and on a laboratory chain-of-custody record. Procedures and criteria to be followed are described in Section 8.2 – Dry Weather Analytical Monitoring.

5. Reviewing Previous Investigation Records

The City inspector will review previous investigation records to identify other incidents that have occurred near the area of concern in the past. These records may elucidate the source of the discharge.

6. Documenting Source Investigations

The City will properly document all IC/ID investigations. During an investigation, photographs will be taken to verify all suspected IC/IDs, whether or not they are confirmed. Sample results, notices of violation, correspondence, and other associated documents will be collected and filed with the complaint. This type of documentation will be crucial for any type of enforcement that becomes necessary. Each investigation may require a separate hard copy file containing all

pertinent documentation even though much of the complaint information can be stored electronically in a complaint database.

8.4 Elimination of Illicit Discharges and Connections

8.4.1 Purpose and Permit Requirements

Purpose

The purpose of this Section is to provide a process to eliminate detected illicit discharges, sources, and connections once identified.

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Elimination of Illicit Discharges and Connections is as follows:

Section F.5.d
Each Copermittee shall eliminate all detected illicit discharges, discharge sources, and connections immediately.

Jurisdictional URMP Requirements

The Permit requirement under IDD&E Component for Elimination of Illicit Discharges and Connections is as follows:

Section H.1.a.(7)(d)
A description of procedures to eliminate detected illicit discharges and connections

City Actions

1) Provide a process to eliminate verified illicit discharges, discharge sources, and connections once identified.

8.4.2 Elimination of Illicit Discharges and Connections Actions

<u>Action #1</u> - Provide a process to eliminate verified illicit discharges, discharge sources, and connections once identified.

Elimination consists of two stages: prevention (pre-occurrence) and discontinuance of an illicit discharge or connection (post-occurrence). Prevention is covered in Section 8.1 where opportunities to estimate when and where possible illicit discharges and connections could occur and the measures to preclude the pollutant from entering the MS4. Prevention through education and changes in behavior are also expected to lead to reductions in the long-term. Discontinuance of an illicit discharge or connection includes termination of the source and remediation or removal of the pollutant discharged into the MS4 water body or environmental sensitive area will also be conducted if feasible.

Elimination will be accomplished by identifying those discharges and connections that are prohibited (Section 8.1). The specific list of prohibited discharges are composed of known types of discharges and potential non-storm water discharges. This list will be the targets for elimination. Once a discharge or connection has been verified, the City will proceed to identify the responsible parties to seek elimination of the discharge or connection. If needed, the appropriate external agency will be notified of the incident, type of material discharged disclosed, and an estimated of the possible volume, according to the reporting criteria listed in Section 8.6.2. Elimination will be to the maximum extent practicable.

Voluntary elimination of illicit discharges will be strongly encouraged. However, the next action is to implement a series of steps under Enforcement, Section 8.5.

Elimination of IC/IDs

Any detected illicit connections and illegal discharges will be immediately removed, eliminated, or otherwise stopped in order to comply with the Permit and applicable storm water ordinances.

Remove Illicit Connections

The City will require responsible party(ies) to take actions necessary and appropriate to disconnect, block, stop or divert drainage facilities and pipe connections which are determined to discharge pollutants to the municipal storm drainage system. Appropriate actions may include the following:

- Plug sinks and drains, which are discharging illicit materials to the storm drain system,
- Disconnect all drainage pipes found to discharge illegal pollutants to the storm drainage system,
- Divert illegal discharge to appropriate handling facility either sanitary sewer or on-site treatment methods. Contain and properly manage hazardous waste materials including proper storage and disposal methods.

Discontinue Illegal Discharges

The City will require responsible party(ies) to implement procedures to discontinue discharges, which are found to carry pollutant materials to the storm drainage system. Procedures must consider the following actions for implementation:

- Eliminate source of discharge
- Remove pollutant materials from the site
- Keep pollutant materials from coming in contact with discharge
- Contain potential illegal discharges on site for treatment or proper disposal.

Illicit connections and illegal discharges which are not removed, eliminated or otherwise continue to discharge to the municipal storm drainage system will be cause for escalating enforcement actions by the City.

8.5 Enforce Ordinances

8.5.1 Purpose and Permit Requirements

Purpose

The purpose of the Section is to define the process for enforcing ordinances, orders, or other legal authority to prevent or eliminate illicit discharges and connections to the MS4.

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Enforce Ordinances is as follows:

Section F.5.e
Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinance, orders, or other legal authority to eliminate detected illicit discharges and connections to its MS4.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component for Enforce Ordinances is as follows:

Section H.1.a.(7)(e)
A description of enforcement mechanisms and how they will be used

City Actions

1) Describe the enforcement process for the City.

2) Develop an Enforcement Response Plan to outline how each enforcement mechanism will be applied.

8.5.2 Enforce Ordinance Actions

Action #1 – Describe the Enforcement Action Plan for the City.

City inspectors and staff members with enforcement authority will issue enforcement actions for illicit discharges or illegal connections from any facility, business, residence and/or operators determined to be out of compliance with the Carlsbad Municipal Code, storm water pollution prevention plan, and BMP requirements specified by the City. The inspectors, in accordance with the City's existing procedures, will document each observed violation. Depending on the severity of the violation, enforcement can range from a verbal warning to civil or criminal court actions with monetary fines. The inspectors will have flexibility to recommend appropriate compliance time frames and to escalate enforcement on a case-by-case basis as needed to ensure compliance.

*If a significant and/or immediate threat to water quality is observed by a City of Carlsbad inspector, action should be taken to require the responsible party, owner and/or operator to immediately cease the discharg*e. The enforcement mechanisms available to inspectors are as follows:

(a) Verbal and/or written warnings;
(b) Notice of Violation;
(c) Compliance schedule;
(d) Cease and Desist Orders or Stop Work Orders;
(e) Notice to Clean, Test and/or Abate;
(f) Suspension, revocation, or denial of permits or license;
(g) Administrative penalties and fines;
(h) Declaration of a Public Nuisance; and,
(i) Civil and/or criminal court actions.

While these measures typically escalate in enforcement action, they are not required to be issued in the exact order presented here. City inspectors will apply or recommend any of the enforcement steps as appropriate according their best professional judgment and the guidelines of the Enforcement Response Plan. A discussion of these measures is provided below.

1. Verbal and/or written Warnings

A common initial method of requesting corrective action and obtaining compliance is a verbal or written warning to the responsible party. Verbal warnings from the inspector are often sufficient to achieve correction of the violation, often while the inspector is present at the site. After notifying the responsible party of the violation, the inspector should document the violation and notification in the inspection or complaint file, and note any time frames given for correcting the problem or follow-up inspections, if needed. In judging the degree of severity, the City of Carlsbad inspector may also take into account any history of similar or repeated violations at the site.

2. Notice of Violation

A written Notice of Violation is used when verbal or written warnings are not deemed sufficient to correct the violation or additional documentation is warranted. The written Notice of Violation describes the infraction that is to be corrected and the required response or time frame(s) for correction. The notice is issued to the responsible party, and a copy is placed in the active inspection file. If the violation is corrected to the satisfaction of the inspector, the inspector will document compliance in the inspection file.

3. Compliance Schedules

A compliance schedule may be issued to ensure that multiple violations or violations requiring capital expenditures are corrected by specified deadlines.

4. Cease and Desist Orders or Stop Work Orders

A City inspector may issue an order to cease and desist a discharge, practice, or operation that is occurring or is likely to take place in violation of the City ordinance. The inspector may direct the responsible party to take appropriate remedial or preventive action to prevent the violation form recurring. Whenever any work is being done contrary to the provisions of the City ordinance, the City inspector may issue a written order that the work be stopped until further notice.

5. Notice to Clean, Test and/or Abate

If the enforcement official finds any sediment, waste or pollutants on the sidewalk or a parcel of land that has potential to enter the City's storm water conveyance system in violation of the City ordinance, the inspector may issue a written notice to remove the material in a reasonable manner.

6. Suspension, Revocation, or Denial of Permits or Licenses

Violations of the City ordinance may be grounds for local permit or license denial, suspension, or revocation.

7. Administrative Penalties or Fines

Because violations vary in threat to water quality, City inspectors may consider utilizing storm water field citations for infractions or misdemeanors. Similar to traffic violations, the penalty for a storm water infraction can be relatively minor for a first offense. Repeated violations could result in escalating fines or misdemeanor charges.

8. Declaration of a Public Nuisance

Whenever an existing condition or a discharge into the storm water conveyance system violates the City ordinance, it is considered a threat to public health, safety, and welfare and may be declared a public nuisance. The inspector may follow appropriate procedures to recommend a declaration of the a public nuisance by City Council in order to abate the nuisance discharge or condition.

9. Civil and/or Criminal Court Actions

As a final resort, the City of Carlsbad may use civil and/or criminal court actions under the State Porter Cologne Water Quality Act or the Federal Clean Water Act, which may result in significant fines levied upon the non-compliant responsible parties.

<u>Action #2</u> – Develop an Enforcement Response Plan to outline how each enforcement mechanism will be applied.

The City will develop an Enforcement Response Plan to outline procedures to identify, document, and respond to storm water violations. The plan will provide guidance for City inspectors in selecting initial and follow-up enforcement actions, identifying responsible staff, and specifying appropriate time frames for actions.

8.6 Prevent and Respond to Sewage Spills and Other Spills

8.6.1 Purpose and Permit Requirements

Purpose

The purpose of this Section is to generate a process for prevention, response, containment, remediation, and notification of pollutant-containing spills (including sewage).

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Prevention and Respond to Sewage Spills and Other Spills is as follows:

Section F.5.f
Each Copermittee shall prevent, respond to, contain and clean up all sewage and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Copermittee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times.
Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component for Prevention and Respond to Sewage Spills and Other Spills is as follows:

Section H.1.a.(7)(f)
A description of methods to prevent, respond to, contain, and clean up all sewage (including spills from private laterals and failing septic systems) and other spills in order to prevent entrance into the MS4

Section H.1.a.(7)(g)
A description of the mechanism to receive notification of spills from private laterals

City Actions

1) Define the process for prevention, response, containment, remediation, and notification of spills, including sewage.

8.6.2 Prevent and Respond to Sewage Spills and Other Spills Actions

<u>Action #1</u> - Define the process for prevention, response, containment, remediation, and notification of spills, including sewage.

The City's Spill Prevention Plan (including Sewer Overflow Prevention Plan (SOPP)) covers spills to the storm water conveyance system and originating from the sanitary sewer systems. The intent of the Spill Prevention Plan is to prevent or minimize the potential for spills or sanitary sewer overflows by developing and implementing a procedural program.

The City's storm water conveyance system consists of: catch basins/inlets, gutters, streets, ditches, channels, and piping. Maintenance of the storm water conveyance system is discussed in Section 2 and Table 9 of this JURMP. The City's Wastewater Collection System utilizes about 145 miles of sanitary sewers and approximately 17,000 service laterals and 17 sewage lift stations for sewage conveyance to the Encina Wastewater Authority for treatment. There are five (5) major sewage drainage basins as listed below. The City owns and leases capacity in all of these interceptors servicing other agencies including: City of Vista, City of Oceanside, Vellecitos Water District, Leucadia County Water District, and the Encinitas Sanitary District.

- Vista/Carlsbad Interceptor Sewer Drainage Basin
- North Agua Hedionda Interceptor Sewer Drainage Basin
- South Agua Hedionda Interceptor Sewer Drainage Basin
- Buena/Vallecitos Interceptor Sewer Drainage Basin
- North Batiquitos Interceptor Sewer Drainage Basin

A procedural prevention program is the basis of the SOPP and contains the following elements:

- Inspection - Visual/Video during routine line cleaning/checks; Focus on inclement weather; Response to odors or complaints; Vandalism reports; Daily sewer lift station checks.
- Preventative Maintenance - Continuous program of scheduled cleaning; Lift station alarm checks, Replacement when worn; Prioritizing repairs; Staff training; Public education.
- Spill/Sewage Overflow Response - Standard Operating Procedure (SOPs for pipeline blockage; forcemain leak; pump station failure;) to reduce or eliminate public health hazards, prevent unnecessary property damage, and minimize the inconvenience of service interruptions.
- Posting - Post signs identifying surface waters where pollution would affect human health.
- Emergency Response - After hours (using emergency phone numbers) coordinators implement the SOPs listed in Spill/Sewage Overflow Response and notify the San Diego County Department of Health Services with 24 hours to the Prop 65 coordinator. A written report is submitted to the San Diego Regional Water Quality Control Board (SDRWQCB) within 5 working days from the date of the sewage spill/overflow using the Overflow/Spill Report Form. (Form provided following this Section).
- Other spills (non-sewage from the sanitary system) that are investigated will be reported as follows:

  Spills that require an emergency response by the Fire Department and the San Diego County Department of Environmental Health Hazardous Incident Response Team (HIRT) for management or mitigation will be reported to the Governors Office of Emergency Services and any other appropriate agencies, including the San Diego Regional Water Quality Control Board, by the HIRT in accordance with State requirements and within the required timeframes.

- Restoration - Areas affected by a spill or overflow are restored by removing the pollutant-containing materials and disposing according to appropriate solid and hazardous waste regulations.
- Documentation - Standardized forms are used to document the daily operation and maintenance of the storm water conveyance and sanitary sewer system. (See Overflow/Spill Report; Daily Sign Check, and Incident Report forms provided following this Section).
- Reporting - Annual reports of the actions taken under the SOPP are submitted to the SDRWQCB using a form (see Overflow/Spill Report form provided after this section). The forms are summarized annually in electronic format.
- Training - A semi-annual program to alert employees to the emergency and response procedures. A quarterly tailgate program to focus employees on preventative and routine maintenance procedures. Training is documented on the Spill/Overflow Training Form (See Form provided following this Section).

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - SAN DIEGO REGION
SPILL/SANITATION SEWER OVERFLOW (OVERFLOW) REPORT FORM

SPILL/OVERFLOW INFORMATION:

1. SPILL/OVERFLOW SEQUENTIAL TRACKING NO.: _
2. REPORTED TO: _
   (ENTER FAX, VOICE MAIL, OR NAME OF REGIONAL BOARD STAFF)
3. DATE REPORTED: _ _/_ _/_ _ (MM/DD/YY)
   TIME REPORTED: _ _ : _ _ (MILITARY OR 24-HOUR TIME)
4. REPORTED BY: _
5. PHONE: (_ _ _) _ _ _ - _ _ _ _
6. RESPONSIBLE AGENCY (SPILL OR OVERFLOW):_ _
7. SPILL/OVERFLOW START: DATE: _ _ / _ _ / _ _ (MM/DD/YY)
   TIME: _ _ : _ _ (MILITARY OR 24-HOUR TIME)
8. SPILL/OVERFLOW END: DATE: _ _ / _ _ / _ _ (MM/DD/YY)
   TIME: _ _ : _ _ (MILITARY OR 24-HOUR TIME)
9. TOTAL SPILL/OVERFLOW VOLUME: _ (GALLONS)
10. SPILL/OVERFLOW VOLUME RECOVERED: _(GALLONS)

SPILL/OVERFLOW LOCATION:

11. STREET: _
12. CITY: _
13. COUNTY: _ _ (SD = SAN DIEGO)
14. ZIP CODE: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
15. STORM DRAIN OR SANITATION SEWER STRUCTURE I.D.:

_ _

16. NUMBER OF SPILLS OR OVERFLOWS AT THIS LOCATION IN THE PAST 12 MONTHS: _ _
17. SPILL/OVERFLOW CAUSE (CIRCLE ONE)

ROOTS	GREASE	LINE BREAK	INFILTRATION	FLOOD
ROCKS	BLOCKAGE	POWER FAILURE	PUMP STATION FAILURE	
DEFRIS	VANDALISM	FOOD DAMAGE	MANHOLE FAILURE	
CONSTRUCTION		ACCIDENT	INTENTIONAL	OTHER

18. SPILL/OVERFLOW CAUSE - ADDITIONAL INFORMATION

_ _

_ _

_ _

19. SPILL/SANITARY SEWER OVERFLOW CORRECTION - DESCRIBE ALL CORRECTIVE MEANSURES AND PREVENTATIVE MEASURES TAKEN OR PLANNED.

__ _

__ _

__ _

__ _

__ _

__ _

<u>INITIAL AND SECONDARY RECEIVING WATERS:</u>

20. DID THE SPILL/SEWER OVERFLOW REACH SURFACE WATERS?_ _ _ _ _ _ _ (YES OR NO)

21. DID THE SPILL/SEWER OVERFLOW ENTER A STORM DRAIN?_ _ _ _ _ _ _ _ _(YES OR NO)

22. NAME OR DESCRIBE THE INITIAL RECEIVING WATERS. (IF NONE, INSERT NONE)

__ _

23. NAME OR DESCRIBE ANY SECONDARY RECEIVING WATERS OR FINAL DESTINATION.

__ _

24. IF THE SPILL.SEWER OVERFLOW DID NOT REACH SURFACE WATER, DESCRIBE THE FINAL DESTINATION.__ _

<u>NOTIFICATION:</u>

25. WAS THE LOCAL HEALTH SERVICES AGENCY NOTIFIED:_ _ _ _ _ _ _ (YES OR NO)

26. IF THE SPILL/OVERFLOW WAS GREATER THAN 10,000 GALLONS DISCHARGED TO SURFACE WATER, WAS THE OFFICE OF EMERGENCY SERVICES (OES) NOTIFIED: _ _ _ _ _ (YES, NO, OR NOT APPLICABLE-N/A)

27. IF THE SPILL/OVERFLOW WAS GREATER THAN 1,000 GALLONS DISCHARGED TO SURFACE WATER, WAS THE SAN DIEGO REGIONAL BOARD NOTIFIED NO LATER THAN FIVE (5) DAYS AFTER THE INCIDENT? _ _ _ _ _ _ _ (YES, NO, OR N/A)

<u>AFFECTED AREA POSTING:</u>

27. WERE SIGNS POSTED TO WARN OF CONTAMINATION? _ _ _ _ _ _ _ (YES OR NO)

28. HOW MANY DAYS WERE THE WARNING SIGNS POSTED? _ _ _ _ _ _ _ _ _(DAYS)

<u>COMMENTS:</u>

__ _

__ _

__ _

__ _

__ _

CERTIFICATION TO SAN DIEGO REGIONAL BOARD

The following certification must be completed within five days of the spill/overflow incident.

> I swear under penalty of perjury that the information submitted in this document is true and correct. I certify under penalty of perjury that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

_____ _____

Name (printed) Signature

_____ _____

Title Date

DAILY SIGN CHECK

LOCATION OF SPILL/OVERFLOW: _

DATE OF SPILL/OVERFLOW: _

LOGIN TIME, DATE, AND SIGN NO. MISSING

DATE: (MM/DD/YY)	TIME: (_ _ : _ _)	SIGN NO.
_ _ _ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _ _

COMMENTS:

_ _

_ _

_ _

_ _

_ _

_ _

CITY OF CARLSBAD
INCIDENT REPORT

TYPE OF INCIDENT: ____

DATE OF INCIDENT: ____

PREPARED BY: ____

LOCATION OF INCIDENT: ____

TIME OF INCIDENT: _____________ POLICE CALLED: YES___ NO ____

POLICE REPORT NO.: _______________ OFFICER'S NAME: _________________

DESCRIBE THE DETAILS IN HOW THE INCIDENT OCCURRED: _____________________

____

____

____

____

CONTACT PERSON OR AGENCY: _____________________________________

ADDRESS: ______________________ PHONE: ________________________

WITNESSES TO THE INCIDENT: (LIST ALL)

NAME	ADDRESS	PHONE
________________	______________________________	____________
________________	______________________________	____________
________________	______________________________	____________
________________	______________________________	____________
________________	______________________________	____________

WHAT ACTIONS WILL BE TAKEN TO PREVENT SUBSEQUENT INCIDENTS:

____

____

____

SIGNED: ___________________________ DATE: _____________________

SUPERVISOR'S
SIGNATURE: ________________________ DATE: _____________________

SPILL/OVERFLOW TRAINING

1. Contain the spill/overflow.
2. Correct the cause of the spill/overflow.
3. Contact the Superintendent or Supervisor.

THE FOLLOWING WILL BE COMPLETED BY EMPLOYEE OR SUPERVISOR:

A. Contact Health Department immediately if spill/overflow will reach any recreational area, beaches, lagoons, above ground water.

Clay Clifton - 24 hour phone number (619) 338-2386/Pager: (619) 492-9825; Fax: (619) 338-2174

1. The Health Department will give specific instructions of areas that need to be posted.
2. Notify and post areas of contamination if Health Department cannot respond immediately.
3. If posting is required, you must maintain a log on all signage locations.
4. Signs will be checked at 7:00 a.m. and 3:00 p.m. daily, until ordered to be removed.

B. Two forms need to completed and turned into the office the next working day.

1. California Regional Water Quality Control Board - San Diego Region: Spill/Overflow Report Form,

AND

2. City of Carlsbad Incident Report Form

8.7 Public Reporting of Illicit Discharges and Connections

8.7.1 Purpose and Permit Requirements

Purpose

The purpose of this Section is to describe how the public is able to report illicit discharges, connections, spills, and sewage overflows.

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Public Reporting of Illicit Discharges and Connections is as follows:

Section F.5.g
Each Copermittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines shall be capable of receiving reports in both English and Spanish 24 hours per day / seven days per week. Copermittees shall respond to and resolve each reported incident. All reported incidents, and how each was resolved, shall be summarized in each Copermittee's individual Jurisdictional URMP Annual Report.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component for Public Reporting of Illicit Discharges and Connections is as follows:

Section H.1.a.(7)(h)
A description of efforts to facilitate public reporting of illicit discharges and connections, including a public hotline

City Actions

1). Describe the use of the public hotline for reporting illicit discharges, illegal connections, spills and sewer overflows.

8.7.2 Public Reporting of Illicit Discharges and Connections Actions

<u>Action #1</u> - Describe the use of the public hotline for reporting illicit discharges, illegal connections, spills and sewer overflows.

The City has a Hotline used by the public to report potential illicit discharges and connections. The Hotline is posted on the City's Website and the phone number is provided in informational mailers to residents and businesses. The following flow diagram outlines how a Hotline call is received and a response action taken.

Public participation is an essential part of an illicit discharge elimination program. Many illicit discharges are one-time occurrences that may not be observed by City staff. Concerned citizens can help stop illicit discharges by reporting them to the City. Citizens of Carlsbad can file complaints by phone or e-mail using the two public complaint hotlines and e-mail address listed below, which are currently operated by the City of Carlsbad and the County of San Diego Department of Environmental Health:

- **City of Carlsbad Storm Water Hotline, (760) 602-2799**
  e-mail: stormwater@ci.carlsbad.ca.us
  The City Storm Water Hotline provides a voice mail message for 24-hour access and directs complainants according the flow chart at the end of this document. The City hotline currently provides information in English only, however, bilingual services in English and Spanish are anticipated to be functional by mid-summer 2002. Complaints received via e-mail will be forwarded to the appropriate personnel for investigation.

- **County Storm Water Hotline, 1-888-846-0800**
  The County storm water hotline is answered Monday through Friday, 8:00 a.m. – 5:00 p.m. and provides services in both English and Spanish and provides a voice mail message for 24-hour public access. Relevant complaints received through the County hotline will be forwarded to the City Storm Water Protection Program.

In addition to public complaints, the City will train all full-time maintenance and operations staff to immediately refer all storm water violations observed while working in the field to the Storm Water Protection Program.

Upon receiving a storm water pollution complaint, the City will implement the following complaint receipt procedures using Form 8-4:

- ***Complaint Information***.
  Collect essential information from the reporting party including:

  - Complainant information,
  - Responsible party information,
  - Location and description of the discharge, and
  - Materials and waste involved, etc.

  Complaint information will be collected using a standardized intake form, which may either be logged onto hard copy forms or directly input into a database.

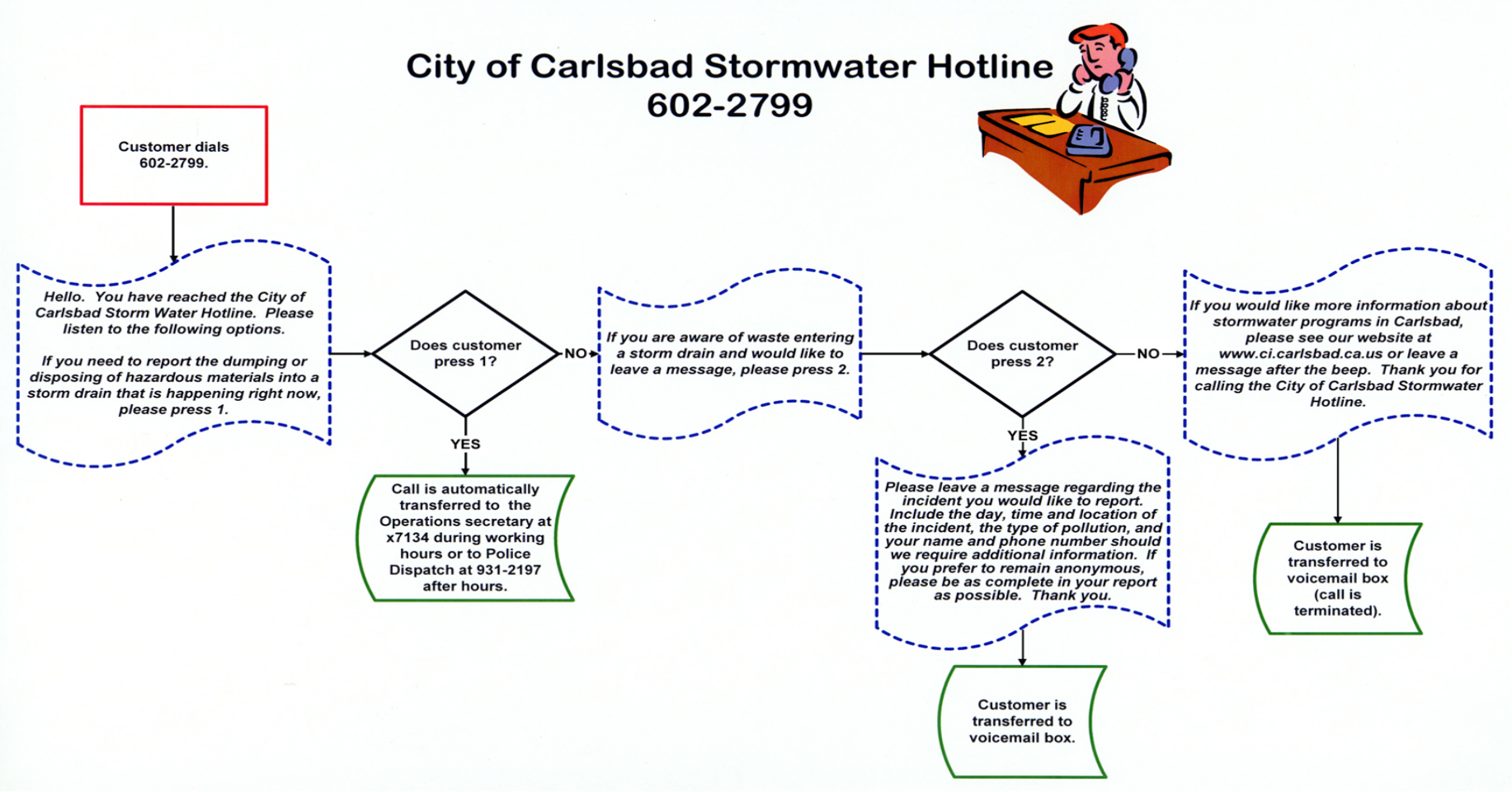
- ***Prioritization***.
  Complaints will be prioritized according to relative urgency using the following criteria:

  - Is a hazardous or unknown material involved?
  - Is the spill currently occurring?
  - Is there an immediate threat to health or the environment?

  If the discharge involves a hazardous or unknown material, the local fire department will be dispatched to investigate. Fire departments will contact the San Diego Hazardous Incident Response Team (HIRT) if needed. For discharges that are currently occurring, an immediate referral to the appropriate agency, whether storm water, wastewater, or other group will be made. Discharges that have ended may not need immediate investigation. Investigations will follow procedures outlined in Section 8.3 of this document.

- ***Routing / Referral***.

  Based on the prioritization, complaints will be routed to the appropriate City staff or department, or other appropriate agency for further investigation and the City will confirm receipt.


City of Carlsbad Stormwater Hotline
602-2799
Customer dials 602-2799.
Hello. You have reached the City of Carlsbad Storm Water Hotline. Please listen to the following options.
If you need to report the dumping or disposing of hazardous materials into a storm drain that is happening right now, please press 1.
Does customer press 1?
NO
YES
Call is automatically transferred to the Operations secretary at x7134 during working hours or to Police Dispatch at 931-2197 after hours.
If you are aware of waste entering a storm drain and would like to leave a message, please press 2.
Does customer press 2?
NO
YES
Please leave a message regarding the incident you would like to report. Include the day, time and location of the incident, the type of pollution, and your name and phone number should we require additional information. If you prefer to remain anonymous, please be as complete in your report as possible. Thank you.
Customer is transferred to voicemail box.
If you would like more information about stormwater programs in Carlsbad, please see our website at www.ci.carlsbad.ca.us or leave a message after the beep. Thank you for calling the City of Carlsbad Stormwater Hotline.
Customer is transferred to voicemail box (call is terminated).

8.8 Disposal of Used Oil and Toxic Materials

8.8.1 Purpose and Permit Requirements

Purpose

The purpose of this Section is to define the City's efforts to dispose of used oil and other toxic materials.

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Disposal of Used Oil and Toxic Materials is as follows:

Section F.5.h
Each Copermittee shall facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation shall include educational activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Curbside collection of household hazardous wastes is encouraged.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component for Disposal of Used Oil and Toxic Materials is as follows:

Section H.1.a.(7)(i)
A description of efforts to facilitate proper disposal of used oil and other toxic materials

City Actions

1). Describe the City's used oil and household hazardous waste programs.

8.8.2 Disposal of Used Oil and Toxic Materials Actions

<u>Action #1</u> - Describe the City's used oil and household hazardous waste programs.

USED OIL PROGRAM

The City currently endorses a used oil recycling program where the public may recycle up to 5 gallons of used motor oil at three locations. The used oil can only be accepted if it is not mixed with other liquids, including water, antifreeze, gasoline, or parts cleaners. The following three locations accept used oil for recycling.

Firestone Store #2252
2545 El Camino Real
Carlsbad, CA 92008
(760)434-8392
CIWMB#: 37-C-01199

Jiffy Lube #1621
6021 Paseo Del Norte
Carlsbad, CA 92009
(760)431-9875
CIWMB#: 37-C02977

Ken Grody GMC Pontiac
5445 Paseo Del Norte
Carlsbad, CA 92008
(760)438-1021
CIWMB#: 37-C-05563

The City is aware of the California Integrated Waste Management Board (Board) revised regulations for the Used Oil Recycling Program. Chapter 4 of the Public Resources Code 48600-48695 is the proposed California Oil Recycling Enhancement Act. The proposed regulations are intended to streamline the Used Oil Recycling Program requirements, provide more clarity to regulated entities and address changes in the law. The proposed regulations have been changed from a "question/answer" to a standard regulation format. Also, many sections are being renumbered and numerous editorial and insignificant changes are also being made. The proposed regulations will replace the existing regulations after a formal rulemaking process. The City will review the recycled oil program during Permit Year 2002 and look to implement any changes in Permit Year 2003.

HOUSEHOLD HAZARDOUS WASTE PROGRAM

The City's Household Hazardous Waste (HHW) program promotes alternatives to the illegal disposal of household hazardous waste and used oil for the protection of California's environment and the health of its inhabitants.

Major goals of the program:

- Provide the public with convenient collection locations for used oil and other types of HHW.
- Increase the demand for new products made from HHW.

The City has contracted with the City of Vista for Carlsbad residents to dispose of HHW. The following location is available for City residents.

Household Hazardous Waste Collection Facility
1165 East Taylor Street
Vista, California 92084

This facility is open on Saturdays, 9 a.m. to 3 p.m. ONLY (facility is closed on holiday weekends). HHW is anything labeled Caution, Warning, Danger, Poison, Toxic, Flammable or Corrosive, such as paint, oil, pool chemicals, auto batteries, etc. It is dangerous and illegal to discard of HHW in the trash, down the drain, or in

the street/gutter. The City has a toll-free phone number for additional information (800-714-1195). The City regularly promotes the use of the facilities through mailers to residents and has the information published on the City's Website. The City of Carlsbad is exploring the feasibility of curbside HHW. Outreach efforts will be conducted as outlined in Section 9 of this JURMP.

8.9 Limiting Infiltration from Sanitary Sewer to MS4

8.9.1 Purpose and Permit Requirements

Purpose

The purpose of this Section is to define the controls and measures the City will take to limit the infiltration and seepage of sanitary sewer flows to the MS4.

NPDES Permit Order No. 2001- 01 Requirement(s)

The Permit requirement under the IDD&E Component for Limiting Infiltration from Sanitary Sewer to MS4 is as follows:

Section F.5.i
Each Copermittee shall implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to limit infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

Jurisdictional URMP Requirements

The Permit requirement under the IDD&E Component for Limiting Infiltration from Sanitary Sewer to MS4 is as follows:

Section H.1.a.(7)(j)
A description of controls and measures to be implemented to limit infiltration of seepage from sanitary sewers to MS4s

Section H.1.a.(7)(k)
A description of routine preventive maintenance activities on the sanitary system (where applicable) and the MS4

City Actions

1). Describe the program to limit and control the infiltration and seepage from the sanitary sewer system to the MS4.
2). Describe the routine preventive maintenance activities currently performed on the City's sanitary sewer system and the MS4.

8.9.2 Limiting Infiltration from Sanitary Sewer to MS4 Actions

<u>Action #1</u> - Describe the program to limit and control the infiltration and seepage from the sanitary sewer system to the MS4.

Sewer lines are designed and installed to minimize leakage. This leakage potentially increases over time as the sewer lines age. Cracks can develop from above or below ground stress, deterioration, biological degradation, or by root intrusion. Wastewater can then infiltrate into the soil or groundwater through these cracks and contaminate the surrounding area. Contamination can also occur by sewer overflow. Overflow is more common in combined storm sewer systems due to the high flow rates. Sometimes at peak flow rates, the water in the sewer can be washed back out through manholes, curb inlets, and yard drains where the water infiltrates into the soil from the top layer. Sanitary sewers infiltrate to several layers below the surface.

Household cleaners, organic wastes and human feces are the main components of sanitary sewer fluids. Bacteria within these fluids can produce acids that can "eat" away the concrete pipe in the conveyance sewer system. Some bacteria use sewer fluids to create acidic conditions. Quite often, corrosion in concrete sewer pipe is caused by the bacterial production of sulfuric acid. The sulfuric acid then attacks and erodes the concrete. As the acid eats away the concrete, small stress fractures can be created and can result in the shattering of the pipe. Infiltration of wastewater into the soil and possibly surrounding structures such as the storm water conveyance system may occur.

Understanding how the sanitary sewer wastewater is transported through soils determines the destination of the seepage. Several different transport mechanisms occur:

- *Adsorption:* the separation of organic contaminants from the soluble phase onto the soil matrix. The contaminants move through the soil matrix and some of the contaminant's particles "adhere" to soil particles. Most contaminants that are sorbed are hydrophobic in nature. The more hydrophobic the contaminant, the less soluble it is in water.
- *Advection:* the movement of contaminants that move along with the bulk flow at the seepage velocity in porous media using the path of least resistance. The seepage velocity is the same as that of the average linear velocity of a contaminant.
- *Biodegradation:* the transformation of certain organic compounds to simple CO_2 and water in the presence of microbes in the subsurface.
- *Diffusion:* molecular mass-transport process in which solutes move from areas of a higher gradient to areas of a lower gradient. Mass-transport can also occur due to differences in energy levels (higher to lower).
- *Dispersion:* mixing process caused by differences in wastewater and contaminant velocity in the porous media.

The City of Carlsbad contracts with the Encina Wastewater Authority for inspections of major industrial dischargers to monitor industrial waste to the sanitary sewer in order to minimize the effects on the system.

To determine the cost effectiveness of any program to control infiltration and inflow, an evaluation of the sewer system is performed. This evaluation determines the specific location, estimated flow rate, method of rehabilitation, and costs of rehabilitation versus cost of transportation and treatment for each defined source. Steps in the evaluation include visual inspection, smoke testing, dye water tracing and flooding, and internal television inspection. This process may be performed by a consulting firm and the related data is put into a report and given to the needed group for recommendations on sewer rehabilitation and repair. The internal video inspections can be performed using specialized cameras and data base information systems. The data

base software is needed to keep track of blemishes observed in the pipes. Blemishes could be any of the following: offset joints, root intrusion, mineralization, infiltration of groundwater, observation of debris, cracks and shatters in the pipe and laterals, etc. GIS is being used more now also because of its effectiveness in plotting geographical points of interest (manholes, curb inlets, grates, pump stations, etc.). After the all points are plotted, the user can identify manhole numbers by their GPS numbers. The City owns and leases sanitary sewer capacity to the City of Vista; City of Oceanside, Vallecitos Water District, Leucadia County Water district, and the Encinitas Sanitary District.

To address capacity, the City is currently upgrading sewer pipelines and storm drains as part of the Vita/Carlsbad Sewer/Storm Drain Replacement Project. The project is 15% complete and will provide invaluable benefits to the community, such as maintaining a high-quality, reliable wastewater system, protecting the environment and water quality, while reducing seasonal flooding in downtown Carlsbad.

The City's sewage system was planned and constructed as dictated by watershed or topographic boundaries. Since sewer lines generally follow the low areas of a watershed, there are a number of gravity sewers, which end at lagoons or near the ocean. Protection of these surface waters, recreational water and/or the health and safety of the public is the City's priority concern. Infiltration and seepage from the sanitary sewer system are minimized and controlled by the current preventative maintenance program described below.

<u>Action #2</u> - Describe the routine preventive maintenance activities currently performed on the City's sanitary sewer system and the MS4.

Operation of the sewer system in the City of Carlsbad includes a continuous preventive maintenance and re-design cycle. Once designed and built, the sanitary sewer system is maintained to preserve the design level of the system as long as possible. As the system ages, preventive maintenance no longer is cost effective and the system requires re-design. This constant maintenance/design loop keeps the sanitary sewer system current with new technologies and additional flows from a steady growth environment. The focus for preserving the sanitary sewer system is a solid preventive maintenance schedule. The following two sets of bullets lists how the City maintains the sanitary sewer system.

Preventative maintenance of the sanitary sewer system and MS4 includes the following:

- Annual inspection of portions of the conveyance systems (streets, gutters, catch basins, inlets, channels);
- Inspections of the conveyance system pipelines as needed;
- Scheduled sewer main cleaning by high velocity hydraulic cleaning (Vactor);
- Daily record keeping by inspection and cleaning crews (manhole inspection reports to detect deterioration of the cement structure before failure and work order documentation);
- Remove debris from manholes as soon as possible;
- Clean documented priority lines (excessive grease, flat lines or low flows) a minimum of two times per year;
- Mail educational letters to commercial businesses, industry, and residences;
- Complete repairs in a timely manner;
- Prioritize repairs;
- Continuous training of staff;
- Maintain an alarm system in each sewer lift station.

Inspection procedures of the collection lines may be accomplished by using the following methods and forms:

- Visually inspect by line cleaning crews as they are scheduled to work in the area;
- Complete a manhole inspection report;
- Video inspections of internal pipelines;
- Additional observations during times of inclement weather;
- Inspect after receiving odor or lateral complaints that might be the result of a blockage;
- Inspect after receiving complaints of vandalism such as children playing in or around manholes;
- Daily sewer lift station checks.

MANHOLE INSPECTION REPORT

District No. _____ Date: _____ Time: _____am/pm By: _____

Contract No. _____ Trunk Name: _____

Manhole Station: _____ Manhole Type: A, B, or C GW seepage: Yes/No

Cross Streets: _____ At/Near: _____

CONDITION

ITEM	**GOOD 0-10%**			**FAIR 11-25%**			**POOR 26-50%**			**VERY POOR >51%**		
	TOP	MID	BASE	TOP	MID	BASE	TOP	MID	BASE	TOP	MID	BASE
EXPOSED AGG												
SOFTENING CONC												
EXPOSED STEEL												
BRICKS/ MORTAR												

COVER SIZE: BOLT DOWN: Y/N SEALED: Y/N	**GOOD**	**FAIR**	**POOR**	**VERY POOR**
GRADE RINGS				
FRAME/COVER				

COATINGS: PVC/ZEBRON/ NONE FIBERGLASS OTHER:	**GOOD**			**FAIR**			**POOR**			**VERY POOR**		
	TOP	MID	BASE	TOP	MID	BASE	TOP	MID	BASE	TOP	MID	BASE
BUBBLES												
PEELING												
MISSING AREAS												

PIPE SIZE: FLOW DEPTH: -1/4 +/- 1/3 + / - 1/2 + / - 2/3 + / - 3/4 + / FULL
H2S: _____ ppm (if entry into confined space)
COMMENTS:
_____

_____